

Repair JP-8 Fuel Tanks
Mountain Home Air Force Base, Idaho
MTH 99-0020

PROJECT SPECIFICATIONS

May 19, 1999

Project No. 99012

REPAIR JP-8 FUEL TANKS
MOUNTAIN HOME AIR FORCE BASE, IDAHO

SPECIFICATION OUTLINE

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SECTION 01010 - SUMMARY OF WORK

1.1 GENERAL

- A. Drawings, Contract Clauses, Special Contract Requirements, and other Division 1 Specification Sections, apply to this Section.

1.2 DESCRIPTION OF WORK

- A. The following description is a general overview of the Project and is not a complete list of all operations to be performed under this Contract.
- B. This project consists of the following:
 - 1. The project(s) consist of sandblasting the tank(s) walls, floors, and ceilings to remove all presence of existing rust and scale from the interior of the tank(s).
 - 2. The existing tank(s) is steel lined with earth and concrete cover and is approximately 18 feet high by 120 feet in diameter.
 - 3. The interior walls, floors, and ceilings are to be coated with an epoxy liner.
 - 4. The interior of the tank(s) shall be inspected for weak welds or other possible structural deficiencies. The steel stiffeners within and around the walls of the tank shall be seal welded on both sides to close all gaps (joints) between surfaces.
 - 5. The Contractor shall comply with 29 CFR part 1910.39 relative to ventilation and respirators to be worn by the workers.
 - 6. Contractor shall contain all waste material within the area of work and shall legally dispose of all waste materials.
 - 7. The Government will defuel the tank(s) and clean the tank(s) of all existing sludge and dirt. Contractor to clean surfaces and prepare tank(s) for sandblasting. The Contractor shall be responsible to clean the tank(s) from debris created through this Contract.
 - 8. The Government will remove all appropriate internal gages, valves, and measuring devices that interfere with work of this Contract.
 - 9. Contractor shall be aware that work will be performed in a confined and toxic area and shall be responsible to provide all necessary precautions.
- C. Work under this Contract is in a permit-required confined space entry. The Contractor shall coordinate with the Contracting Office relative to access to the area and must comply with OSHA 1910.146.

1.3 DEFINITIONS

- A. Furnish: The term furnish shall mean to supply and deliver to the project site ready for installation.
- B. Install: The term install shall mean to erect, apply, or place in position ready for service and use.
- C. Provide: The term provide shall mean to furnish and install ready for service and use.

- D. Workday: Workday shall mean days Monday through Friday, except for federal holidays.
- E. Contracting Officer (CO): This shall mean the person or persons on base authorized to enter into, administer, and terminate contracts and make related determinations and findings. The term includes certain Authorized Representatives of the CO acting within the limits of their authority as delegated by the CO. As defined in the Federal Acquisition Regulation (FAR) 52.202-1 (f).

1.4 REFERENCES

- A. The references and standards cited throughout this Specification shall be the latest date in effect as of the Bid Opening date unless otherwise stated.

1.5 CONTRACTOR USE OF SITE AND PREMISES

- A. Limit use of the premises to construction activities in areas indicated. Allow for Government occupancy and access.
- B. Confine operations to areas within Contract limits as approved by Contracting Officer. Do not occupy or disturb portions of the site beyond areas in which construction operations are indicated.
- C. Keep driveways and entrances serving the premises and facilities clear and available to the Government at all times. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on site.
- D. Sweep job site and haul routes as required to ensure spillage, debris, mud, and soil tracked from work site or dump site is removed and does not accumulate.
- E. Hauling: Cover and secure sand, gravel, fill material, construction debris, or other material when hauling to prevent airborne particles and falling material. Cleanup roadways and adjacent property should debris be spilled while hauling. Repair property damage caused by falling debris or airborne material while hauling on base. Haul routes shall be as approved by the Contracting Officer's Representative.
- F. Protect all Government property within the work site not scheduled to be demolished under this Contract. Protect property to be demolished until its scheduled demolition time.
- G. Maintain and repair pavements, drives, or turf areas utilized during construction for access roads or storage areas, to a condition similar to existing before Work under this Contract. Costs associated with the above work shall be incidental to the contract.
- H. Landscaping at Job Site: Lawn areas damaged as a result of work activities shall be repaired by installation of sod (rather than seeding). Keep vehicles off grass areas unless allowed under this Contract. Protect areas under and around trees to prevent damage to tree roots. Keep vehicles and construction materials a safe distance from trees to ensure damage from soil compaction does not occur.

- I. On-site storage for construction materials and equipment is limited. Location of an on-base storage area will be identified at the preconstruction meeting or as shown on the project drawings. Contractor is responsible for keeping weeds cut, debris picked up, and storage site clean.
- J. Electricity may be available at the staging area. Connections are the Contractor's responsibility. Water is available on base for filling trucks and equipment. There is no charge for consumption in amounts reasonable for the construction.

1.6 GOVERNMENT OCCUPANCY

- A. The Government will occupy the premises during entire period of construction for the conduct of normal operations.
- B. Cooperate with the Government to minimize conflict and to facilitate Government operations.
- C. Schedule the Work to accommodate this requirement.

1.7 FIRE PROTECTION

- A. Comply with the following:
 - 1. Army Corps of Engineers Manual EM 385-1-1, General Safety Requirements
 - 2. National Fire Protection Association (NFPA) 241, Standard for Safeguarding Construction, Alteration, and Demolition Operations
 - 3. Mountain Home AFB Fire Regulations
- B. All personnel shall be trained in the use of portable fire extinguishers and shall be familiar with fire reporting procedures at the work site.
- C. Keep excess flammable liquids in closed metal containers approved for such storage.
- D. A watch person shall be present when temporary heating devices are used and the work site is vacant.
- E. The correct number of approved fire extinguishers shall be present at the work site according to the recommendations of National Fire Protection Association (NFPA) 10, Standard for Portable Fire Extinguishers, and NFPA 241. However, a minimum of two 10 ABC fire extinguishers shall be present at the work site at all times.
- F. Notify the Mountain Home AFB Fire Department at 828-6292 when unusual or potentially dangerous conditions exist due to work being done under this Contract.
- G. Welding, Cutting, and Brazing Operations: Comply with Air Force Occupational, Safety, and Health (AFOSH) Standard 127-5, Welding, Cutting, and Brazing, and with NFPA 51B, Standard for Fire Prevention in Use of Cutting and Welding Processes. See Section on Permits for additional requirements.

1.8 SAFETY

- A. The Contractor shall be solely and completely responsible for conditions of the job site, including safety of all persons and protection of property during performance of the work. This requirement will apply continuously and not be limited to normal working hours.
- B. Vehicle Operation on Mountain Home AFB:
 - 1. Motor vehicle operators and passengers shall use manufacturer installed occupant restraint devices while driving on base.
 - 2. Motorcycles: Operators shall comply with Mountain Home AFB Regulation 34204. Protective helmets shall be worn while riding on Mountain Home AFB.
- C. Work Safety: Comply with the following:
 - 1. 29 CFR (Code of Federal Regulations) 1910, Occupational Safety and Health Standards and with 29 CFR 1926, Safety and Health Regulations for Construction
 - 2. Army Corps of Engineers Manual EM 385-1-1, General Safety Requirements
 - 3. NFPA 241, Safeguarding Construction, Alteration, and Demolition Operations
- D. Health and Safety Plan: Prior to starting Work, prepare and submit a Health and Safety Plan specifically suited for this Project. In addition to OHSA requirements, the plan shall address the following:
 - 1. Placement of barricades and warning signs
 - 2. Systems for detection and monitoring combustible vapor, and oxygen or carbon monoxide levels
 - 3. Emergency procedures and emergency evacuation routes
- E. Maintain Material Safety Data Sheet (MSDS) reference materials at the construction site and submit a copy to the Contracting Officer.
- F. Severe Weather: Secure structures, materials, and equipment at the work site to prevent property damage and personal injury in the event of severe weather or strong winds. Ensure items are secured during times the work site is vacant. The Contractor is liable for injury and damage to property due to improperly or unsecured items.
- G. Safety Checklist: Contractor shall be responsible for lock-out/tagout procedures as outlined in attached CE checklist. Coordinate with Contracting Officer's Representative.
- H. The tank(s) are in a permit required confined space. The Contractor is responsible for ensuring all permits are filled out and all safety equipment is available to perform safe operations in accordance with OSHA 1910.146. This includes, but is not limited to forced air ventilation and continuous air monitoring.

1.9 EQUIPMENT WARRANTY LIST

- A. Provide a comprehensive listing of all installed equipment and associated warranties. Submit the complete listing (typed) no later than pre-final inspection

1.10 PERMITS

- A. Permits from the base are required for the following activities:
 - 1. Welding: Daily welding permits are required for all on site welding and cutting operations. Contact Base Fire Department for permit issues; at 828-6292 or 8286005.

1.11 SPECIAL CONDITIONS

- A. Contract Drawings and Specifications: The Drawings and Specifications associated with this Contract are the property of the United States Government and shall not be used for any purpose other than those required by this Contract.
- B. Absence: Notify the CO prior to an anticipated absence from the work site of more than 2 consecutive workdays. Notify the CO prior to returning to the Project.
- C. Work Hours: Work may be performed from 0700 to 1700, Monday through Friday. Submit written requests for permission to work different hours or on Saturdays, Sundays, and federal holidays to the Contracting Officer 3 work days in advance of the proposed schedule change.
- D. Field Measurements: Field verify existing dimensions and adapt the work to the existing dimensions. Notify the CO of any dimensional differences between the Specifications and Drawings and the existing conditions.
- E. All testing specified elsewhere in the specifications as well as all costs are the responsibility of the Contractor. The testing firm's credentials shall be submitted to the Contracting Officer for approval. The testing firm shall submit all reports and test results to the Contracting Officer.

1.12 PROJECT CLOSE-OUT

- A. Pre-Final Inspection: Contractor must notify Contracting Officer in writing before the proposed pre-final inspection.
- B. Final Inspection: Contractor to provide written notification to the Contracting Officer at least 10 workdays before the proposed date of the final inspection. The 10 days will be considered part of the Contract performance period.

END OF SECTION 01010

LOCKOUT/TAGOUT FOR FUEL TANKS, PIPELINES, AND ASSOCIATED EQUIPMENT						
Check list Item #	OPR	Description of task	Person Contacted	Task Completed Yes/No	Date Task Completed	Date Notified
		This checklist is to be followed when taking jet, mogas and diesel pipelines out of service for maintenance or repairs which are to be performed under a contract awarded by 366 CONS/LGCC.				
1	366 CES/CEOIL; 366 CES/CEC; 366 SUPS/LGSF	Has a time schedule to take the system out of service been established with POL supervisors, and when applicable, contractors?				
2	366 SUPS/LGSF	Has Fuels Management appointed a POL single-point-of-contact, (POC-POL), to assist Liquid Fuel Maintenance (CEOIL) during the fuel system lockout/tagout and notification procedures?				
3	366 SUPS/LGSF	Did the POL-POC assist Liquid Fuels Maintenance and Contractor personnel with the system plan review and valve, pump controller identification and lockout/tagout of valves and controls normally operated by Fuels Management personnel?				
4	366 SUPS/LGSF	Did the POL-POC ensure the Fuels Resource Center (RCC) personnel properly identify and place the affected system(s) out of service and is noted in the daily log sheet and the facilities status board?				
5	366 SUPS/LGSF	Did the POL-POC ensure appropriate fuels management supervisors and system users have been notified and are aware of systems being placed out-of-service?				
6	366 CES/CEOIL; 366 CES/CEC; 366 SUPS/LGSF	Have the appropriate diagrams and drawings been checked to identify all valves and pump controllers that must be closed, locked and tagged out?				
7	366 CES/CEOIL; 366 CES/CEC; 366 SUPS/LGSF	Has an on site inspection, to verify the accuracy of the drawings and identify and additional components that must be closed, been accomplished?				
8	366 CES/CEOIL	Are there enough locks, tags, cables, chains, and multi-lock devices on hand to enable lockout of all the identified components?				
9	366 CES/CEOIL	Has POL Control (8-6000) been notified to reconfirm the system shutdown just prior to closing the valves?				
10	366 CES/CEOIL	Close and lockout/tagout all valves, pump controllers as previously identified. Use multi-lock devices for POL and/or contractor locks as well as 366 CES/CEOIL's locks.				
11	366 CES/CEOIL	Pump or Drain down to remove as much fuel as possible prior to opening the system. Contractors must put their own locks and tags on the locked out valves or other components before they begin work. Notify 366CONS (8-2656), Safety (8-2065), and 366 SUPS/LGSF (8-6000) if they have not.				

Check list Item #	OPR	Description of task	Person Contacted	Task Completed Yes/No	Date Task Completed	Date Notified	OPR Initials
12	366 CES/CEOIL	When the contract has been completed or the maintenance or repair action has been completed the contractor or other organization must remove their locks and tags first. The contractor must notify 366 CES/CEOIL shop supervisor that the work has been completed. Have all other locks and tags been removed?					
13	366 CES/CEOIL	When all system checks have been completed and no further work is required; notify POL control (8-6000) desk and LFM Supervisor to let them know that the system is operational. Has POL been notified that the system is back in service?					
14	366 SUPS/LGSF	Has Liquid Fuels Maintenance personnel notified 366 SUPS/LGSF that the system is back in service and has been tested for leaks and proper operation?					

SECTION 01061 - ENVIRONMENTAL PROTECTION

1.1 GENERAL

- A. Drawings, Contract Clauses, Special Contract Requirements, and other Division 1 Specification Sections, apply to this Section.

1.2 SCOPE

- A. This Section covers prevention of environmental pollution and damage as the result of construction operations under this contract. This section also covers the prevention of non-compliance with Federal, State, Local and Air Force environmental regulations.
- B. For the purpose of this specification, environmental pollution and damage is defined as the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to man; or degrade the utility of the environment for aesthetic, cultural, and/or historical purposes. The control of environmental pollution and damage requires consideration of air, water, and land, and includes management of visual aesthetics, noise, and solid waste, as well as other pollutants.
- C. The contractor is responsible for complying with all Federal, State, Local, and Air Force regulations regarding protection of the environment.

1.3 QUALITY CONTROL

- A. Establish and maintain quality control for environmental protection of all items set forth herein. Record any problems in complying with laws, regulations, and ordinances, and corrective actions taken.
- B. Subcontractors: Assurance of compliance with this section by subcontractors is the responsibility of the Contractor.

1.4 NOTIFICATION

- A. When notified in writing by the Contracting Officer of any observed noncompliance with Federal, state, or local laws, regulations, or permits, the Contractor shall notify the Contracting Officer in writing of the proposed corrective action and take such action as may be approved. Failure to comply promptly may result in the Contracting Officer issuing an order stopping all or part of the work until satisfactory corrective action has been taken. No time extensions will be granted or costs or damage allowed for any such suspension.

1.5 PROTECTION OF ENVIRONMENTAL RESOURCES AND COMPLIANCE WITH ENVIRONMENTAL REGULATIONS

- A. Protect the environmental resources within the project boundaries and those affected outside the limits of permanent work under this contract during the entire period of this contract. Confine activities to areas defined by the drawings and specifications. Environmental protection shall be as stated in the following paragraphs:
- B. Protection of Land Resources: Do not remove, cut, deface, injure, destroy land resources including trees, shrubs, vines, grasses, topsoil, and land forms without special permission from the Contracting Officer except as otherwise specified or indicated.
- C. Wetlands: Do not disturb, drive through, or fill designated wetland areas.
- D. Disposal of Garbage: Place garbage in containers which are emptied on a regular schedule. Conduct all handling and disposal to prevent contamination.
- E. Refuse Disposal and Cleanup: Refuse is defined as debris other than such organic materials as brush or tree stumps.
- F. Refuse Disposal: Include the cost of refuse disposal, such as transportation, handling, dumping fees as applicable, and similar costs in the contract price. Dispose of refuse off site in accordance with all local, state, and Federal rules and regulations.
- G. Fire Hazard: Place cloths, cotton waste, and other combustible materials that might constitute a fire hazard in closed metal containers and place outside or destroy at the end of each day.
- H. Additional Restrictions: Deposition of refuse in existing garbage cans or refuse dumpsters is not permitted. Do not pour, drain or wash cleaners into plumbing fixtures or sanitary or storm sewers. Remove debris, dirt, dust, and stains attributable to or resulting from the work effort or clean to the satisfaction of the Contracting Officer's Representative prior to acceptance of the job. Do not engage in burning of any kind, including vegetation or trees.
- I. Storage, Handling and Disposal of Hazardous Materials or Hazardous Waste shall be in accordance with Federal, State, Air Force and local regulations.
- J. Hazardous waste generated by construction operations remains the property of the Contractor. Manage and dispose of all hazardous waste in accordance with all applicable Federal, State, Air Force and local regulations. Operations shall be, at all times, in compliance with the Resource Conservation and Recovery act (RCRA), 40 CFR 260 and those that follow, and Idaho Rules, Regulations and Standards for Hazardous Waste, (Idaho Code 16.01).
- K. Provisions of these rules include, but are not limited to: accumulate no more than 55 gallons, total, of hazardous waste on site. Once the 55 gallon limit is reached, remove the waste from Mountain Home AFB. Maintain positive control over hazardous wastes at all times.

- L. The only authorized signatory for hazardous waste shipping documents on Mountain Home AFB is 366 CES/CEV (the environmental flight of the base Civil Engineering Squadron). Submit all hazardous waste manifests through the Contracting Officer to 366 CES/CEV for signature. Submit copies of all receiving documents and characterization reports through the Contracting Officer to 366 CES/CEV.
- M. Submit Material Safety Data Sheets (MSDS) to the CO for approval and coordination with 366 CES/CEV on all paints and protective coatings, solvents, adhesives, and all other chemical products to be stored on Mountain Home AFB. Maintain MSDS on site for all materials used on the site.
- N. When transporting hazardous waste or materials, ensure compliance with all applicable rules and regulations, including, but not limited to, DOT, EPA and IDEQ regulations (40 CFR, 29 CFR, IDAPA 16.01)
- O. Protection of Cultural Resources. Do not disturb any site that contains evidence of cultural resources. Ensure all subcontractors do not disturb cultural resources. Upon encountering evidence of cultural resources, stop work and notify the Contracting Officer and the base Cultural Resource Manager (CRM) immediately at 208-828-4297 or 6351. Do not resume work until notified to resume activity. Evidence of cultural resources includes, but is not limited to: presence of historic or pre-historic artifacts, presence of pictographs, presence of human remains, other evidence of historic human activity.
- P. Protection of Water Resources: Keep construction activities under surveillance, management, and control to avoid pollution of surface and ground waters. If the project requires disturbance of over 5 acres of land, submit a NPDES stormwater permit to the EPA, through the Contracting Officer and 366 CES/CEV. Comply with provisions of said permit. Ensure there are no unauthorized discharges to the stormwater collection system. Ensure all discharges to the sanitary sewer system are in accordance with the requirements of the wastewater treatment plant NPDES permit.
- Q. Particulates: Control dust particles, aerosols, and gaseous byproducts from construction activities, processing, and preparation of materials at all times, including weekends, holidays, and hours when work is not in progress. Control hydrocarbons and carbon monoxide emissions from equipment to Federal and state allowable limits at all times.
- R. Spills: Call 911 (on the base phone) in the event of a chemical spill or release of any hazardous materials, regardless of size or status of clean up. Clean up all spills resulting from the performance of the contract. Clean up spills to the government's satisfaction within 72 hours of the spill. In the event that the spill has not been cleaned up to the government's satisfaction within 72 hours, the government may clean up the spill and charge the contractor for clean up costs incurred.

1.6 MAINTENANCE OF POLLUTION CONTROL FACILITIES

- A. Maintain all constructed facilities and portable pollution control devices for the duration of the contract or for that length of time construction activities create the particular pollutant.

1.7 RESTORATION OF LANDSCAPE DAMAGE (VEGETATION – SUCH AS TREES, PLANTS, AND GRASSES)

- A. Restore all landscape features, such as trees, plants, shrubs, grasses, etc. damaged or destroyed during contractor operations outside and within the work areas to a condition similar to that which existed prior to construction activities at no additional cost to the government, unless otherwise indicated on the drawings or other sections of this specification. In the event the damage is not repaired promptly, the Contracting Officer may have the necessary work performed and charge the cost to the contractor.
- B. Replace trees in kind with a minimum 4-inch caliper nursery stock. Replace shrubs, vines, and ground cover in kind; size to be approved by the Contracting Officer.
- C. Meet specifications outlined in ANSI Z60.1 – current publication, “American Standard for Nursery Stock” for all plant material.
- D. Replace grass areas in kind. All regularly maintained lawn areas require sod and shall be installed according to ANSI Z 60.1.
- E. Install grass seeding on a minimum 2-inch topsoil and according to ANSI Z 60.1.

1.8 RECYCLING

- A. The contractor may use the base landfill or may, at his option, dispose of construction materials off-base at a properly licensed and approved landfill. If the contractor wishes to use the base landfill, recycling is required to the maximum extent practicable for all waste generated by the contractor.
- B. Recycling shall consist of sorting and delivering recyclable items to the appropriate recycle processors. Recyclable items include: wood, glass, metals, cardboard, and paper. Any contractor loads not properly sorted will be turned away from the base landfill (or removed from the landfill if already dumped) and shall be removed from the base and disposed off the base, all at the contractor's expense. Appropriate recycling processors are private or government entities currently accepting material for the purpose of recycling. The base recycling center may or may not accept the contractor's recyclables, depending on a number of factors.
- C. Submit a Waste Disposal and Recycling Plan for the Contracting Officer's approval prior to contract start. (See sample "Waste Disposal and Recycling Plan" below). When preparing the plan, the contractor may contact the Base Recycle Center at 828-4212 for advice and suggestions on how to best satisfy the recycling requirement. Submit the plan to the Contracting Officer for coordination with 366 CES/CEV. The plan shall include, at a minimum:
 - 1. Brief description of work done under the contract,
 - 2. Identification of the major waste stream (categories of waste, e.g. wood, fixtures, cardboard, etc) to be generated,
 - 3. Intended method and location of disposal or recycling for each waste system

- D. The contractor may choose to dispose of any or all of the waste streams off-base. The contractor may choose to recover any or all of the waste streams by sending them to an off-base recycling company. The contractor may choose to turn in some waste streams to the base recycling program with the Government's approval. The acceptance of these waste streams depends on the Government's ability to process the waste stream and the contractor's ability to adequately prepare the waste stream to meet the Government's condition requirements. The Government is currently encouraging the recycling of:

1. Wood.
2. Scrap Metal.
3. Corrugated Cardboard.
4. Glass.
5. Paper.

E. **SAMPLE Waste Disposal and Recycling Plan**

1. CONTRACT # _____
2. Brief description of Work done under the contract:
3. Renovate 6000 sq. ft. in building XYZ. Plumbing, electrical, and mechanical systems to be replaced. Floor plan to be changed with new floors, walls, and ceilings. Asbestos abatement planned on existing floor tile mastic and insulation.
4. Identification of the major waste stream (categories of waste, e.g., wood, fixtures, cardboard, etc.) to be generated.
 - a. Scrap Metal.
 - b. ACM.
 - c. Wood Waste.
 - d. Fixtures.
 - e. Mixed Demo Debris.
 - f. Inert Debris.
5. Intended method and location of disposal or recycling for each waste stream.
 - a. Scrap Metal: Existing water pipe (copper), ductwork (steel), and electrical wiring (copper) will be turned in to the Base Recycling Center.
 - b. Wood Waste: Contractor will keep re-usable wood scraps and turn in smaller scraps to the Base Recycling Center free of other bulk building material.
 - c. Mixed Demo Debris: (if less than 10cy) Dispose of in base landfill. (if greater than 10cy) will be ground into a 6-inch minus bulk and disposed of in the base landfill.
 - d. Inert Debris: Disposed of at the MHAFFB inert debris site as directed by the Chief of Heavy Repair, 366 CES/CEOH.

END OF SECTION 01061

SECTION 01300 - SUBMITTALS

1.1 GENERAL

- A. Summary: This Section specifies requirements for handling submittals. Individual submittal requirements are specified in applicable sections for each unit of work.
- B. Schedules required include but not necessarily limited to:
 - 1. Schedule of Material Submittals (AF Form 66).
 - a. Contracting Officer will provide AF Form 66 to Contractor.
 - 2. Material Approval Submittal (AF Form 3000).
- C. The schedule of values, Project meeting minutes, inspection and test reports, record documents, and operation and maintenance manuals are included in respective sections of these specifications.
- D. General Procedures: Coordinate submittal preparation with performance of construction activities, and with purchasing or fabrication, delivery, other submittals and related activities. Transmit in advance of performance of related activities to avoid delay. Transmit each submittal to the Contracting Officer on Material Approval Submittal (AF Form 3000).
 - 1. Coordinate transmittal of different submittals for related elements so processing will not be delayed by the need to review concurrently for coordination. The Contracting Officer reserves the right to withhold action on a submittal requiring coordination until related submittals are received.
 - 2. Processing: Allow two weeks for initial review. Allow more time if processing must be delayed for coordination with other submittals. The Contracting Officer will advise the Contractor when a submittal must be delayed for coordination. Allow two weeks for reprocessing each submittal.
 - a. No extension of time will be authorized because of failure to transmit submittals sufficiently in advance of the Work to permit processing.
- E. Submittal Preparation: Prepare and transmit each submittal on Material Approval Submittal AF Form 3000 to the Contracting Officer. A sample of this form is included at the end of this Section. For identification, place a label or title block on each material being submitted. Provide a 4" x 5" space on the form or beside the title block on Shop Drawings to record Contractor's review and approval markings and action taken. Include the following information on the form for processing and recording action taken.
 - 1. Contract number.
 - 2. Date.
 - 3. Submission number. This number to coincide with line number as shown on Schedule of Material Submittals (AF Form 66).
 - 4. Name and address of Contractor.

5. Specification section/paragraph no./drawing no.
 6. Description of material which includes type, model number, catalog number, manufacturer name, etc.
 7. Drawing number and detail references, as appropriate.
 8. Similar definitive information as necessary.
 - a. Deletion of any of the above information by the Contractor is reason for rejection of the submittal by the Contracting Officer.
- F. Submittal Transmittal: Package submittals appropriately for transmittal and handling. Submittals received from other than the Contractor will be returned without action. Contractor shall submit each line item on AF Form 66 separately.
1. Contractor's signature on the form certifies that information submitted complies with requirements of the Contract Documents.
 2. Transmittal Form: AF Form 3000 provided by the Government.
- G. Contractor's Progress Schedule, AF Form 3064: Submit a fully developed schedule, within 7 days of the date established for Commencement of the Work.
1. Prepare the schedule on an AF Form 3064 and submit to the Contracting Officer for approval.
 2. Secure commitments for performing critical construction operations from parties involved. Coordinate each activity with other activities and show in proper sequence; include minor elements involved in the construction sequence. Indicate sequences necessary for completion of related portions.
 3. Coordinate the Progress Schedule with the Contract Progress Report, list of subcontracts, Submittal Schedule, progress reports, payment requests and other schedules.
 4. Indicate completion in advance of the date established for Final Inspection.
- H. Distribution of Schedules: Upon approval by Contracting Officer distribute copies of the Progress Schedule to the subcontractors, and other parties required to comply with scheduled dates. Post copies in the temporary field office. When revisions are made, distribute to the same parties and post in the same locations.
- I. Schedule Updating: Revise the Schedule immediately after each meeting or other activity, where revisions have been made. Contractor shall obtain Contracting Officer's approval to the revised schedule. Upon approval from Contracting Officer, distribute as directed by Contracting Officer.
- J. Submittal Schedule (AF Form 66):
1. After careful review of requirements for submittals in each Section, add to the Schedule of Material Submittals (AF Form 66) any submittal requirement identified in this Section but not listed on AF Form 66 and coordinate with the contract specialist. Submittals not listed on AF Form 66 does not relieve the Contractor from submitting to the Contracting Officer for approval the unscheduled material not shown on AF Form 66.

- K. Distribution: Following the completion of the submittal schedule, print and distribute the Schedule to the subcontractors, suppliers, fabricators, and other parties required to comply with submittal dates indicated.
1. Post copies in the temporary field office.
 2. When revisions are made and approved by the Contracting Officer, distribute the updated Schedule to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned part of the Work and are no longer involved in the performance of construction activities.
- L. Schedule Updating: Revise the Schedule immediately after each meeting or other activity where revisions have been made Contractor shall obtain Contracting Officer approval to the revised schedule. Issue the updated Schedule concurrently with report of each meeting.
- M. Schedule of Inspections and Tests:
1. Prepare a schedule of inspections, tests and similar services required by the Contract Documents. Submit the schedule within 7 days of the date established for commencement of the Work.
- N. Schedule of Inspection and Test Form: The Schedule shall be in tabular form and shall include but not be limited to the following data:
1. Specification Section number.
 2. Description of the test.
 3. Identification of applicable standards.
 4. Identification of test methods.
 5. Number of tests required.
 6. Time schedule or time span for tests.
 7. Entity responsible for performing tests.
 8. Requirements for taking Samples.
 9. Unique characteristics of each service (if any).
- O. Distribution: Following the Contracting Officer's response to schedule of inspections and tests, distribute the Schedule to the Contracting Officer and each party involved in performance of portions of the Work, where inspections and tests are required.
- P. Special Report: Submit special reports directly to the Contracting Officer within one day of an occurrence.
- Q. Reporting Unusual Events: When an event of an unusual and significant nature occurs at the site, prepare and submit a special report. List the chain of events, persons participating, response by the Contractor's personnel, an evaluation of the results or effects and similar pertinent information. Advise the Contracting Officer in advance when such events are known or predictable.

- R. Daily Construction Reports: Prepare a daily construction report, recording information concerning events at the site and submit to the Contracting Officer weekly. Include the following information:
1. List of subcontractors at the site.
 2. High and low temperatures, general weather conditions.
 3. Accidents, stoppages, delays, shortages, losses.
 4. Emergency procedures.
 5. Change Orders received, implemented.
 6. Partial Completions, occupancies.
- S. Product Data: Collect Product Data into a single submittal for each element or system. One line item is to be submitted per transmittal. If more than one line item is needed to fully document a system, then contractor shall indicate on the front of the AF Form 3000. Mark each copy to show applicable choices and options. Where Product Data includes information on several products, some of which are not required, mark copies to indicate the applicable information. Include the following information:
1. Manufacturer's printed recommendations.
 2. Compliance with recognized trade association standards.
 3. Compliance with recognized testing agency standards.
 4. Application of testing agency labels and seals.
 5. Notation of dimensions verified by field measurement.
 6. Notation of coordination requirements.
- T. Product Data Submittals: Submit three (3) copies of each required Product Data submittal. The Contracting Officer will retain two (2) copies, and will return the other copy to the Contractor either approved or disapproved.
1. Distribution of Product Data Submittals is by the Contracting Officer as follows:
 - a. Contracting Officer - one (1) copy.
 - b. Base civil Engineer - one (1) copy.
 2. Where distribution is not required for all of the above, the extra submittals will be returned to the Contractor.
 3. Distribution: Furnish copies of final submittal to installers, and others required for performance of construction activities. Show distribution on transmittal forms. Do not proceed with installation until an applicable copy of Product Data is in the installer's possession.
 - a. Do not permit use of disapproved copies of Product Data in connection with construction.

- U. Samples: Submit full-size Samples cured and finished as specified and identical to the product proposed. Mount, display, or package Samples to facilitate review. Prepare Samples to match samples where so indicated. Include the following:
1. Generic description.
 2. Size limitation.
 3. Source.
 4. Product name or name of manufacturer.
 5. Compliance with recognized standards.
 6. Availability and delivery time.
 7. Submit Samples for review of kind, color, pattern, and texture, for a final check of these characteristics, and a comparison of these characteristics between the final submittal and the component as delivered and installed. Where variations are inherent in the product, submit multiple units that show limits of the variations.
 - a. Refer to other Sections for Samples that illustrate details of assembly, fabrication techniques, workmanship, connections, operation and similar characteristics.
- V. Sample Submittal: Except for Samples intended to illustrate assembly details, workmanship, fabrication techniques, connections, operation and other characteristics, submit 3 sets of Samples; one set will be returned approved/disapproved.
1. Maintain sets of Samples, as returned by the Contracting Officer, at the Project site, available for quality control comparisons throughout the course of construction activity.
 2. Unless the Contracting Officer observes noncompliance with provisions of the Contract Documents, the submittal may serve as the final submittal.
- W. Distribution: Prepare additional sets for subcontractors, manufacturers, fabricators, installers, and others as required for performance.
- X. Contracting Officer's Action: The Contracting Officer will review each submittal, approve/disapprove on the AF Form 3000, and return. Compliance with specified characteristics is the Contractor's responsibility and not considered part of the Contracting Officer's review.
1. Final Unrestricted Release: Where AF Form 3000 on submittal is marked "Approved", that part of the Work covered by the submittal may proceed provided it complies with requirements of the Contract Documents; final acceptance will depend upon that compliance.
 2. Returned for Resubmittal: When AF Form 3000 submittal is marked "Disapproved", Revise and Resubmit," do not proceed with that part of the Work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal in accordance with the Contracting Officer's notations; resubmit without delay. Repeat if necessary to obtain a different action mark.
 - a. Do not permit submittals marked "Disapproved" to be used at the Project site, or elsewhere where construction is in progress.

END OF SECTION 01300

SCHEDULE OF MATERIAL SUBMITTALS													PROJECT NUMBER		PROJECT TITLE		SOLICITATION/CONTRACT NMBR			
													MTH 99-0020		Repair JP-8 Fuel Tanks					
LINE NUMBER	ITEM OR DESCRIPTION OF ITEM, CONTRACT REFERENCE, TYPE OF SUBMITTAL	TO BE COMPLETED BY PROJECT ENGINEER											TO BE COMPLETED BY CONTRACT ADMINISTRATOR							
		# OF COPIES REQUIRED											DATE RECVD. IN CONTRACTING	DATE TO CIVIL ENGINEERING	RETURN SUSPENSE DATE	SUBMITTAL NUMBER	DATE CONTRACTOR NOTIFIED	CONTRACTOR RESUBMITTAL	FINAL APPROVAL	REMARKS
		CERTIFICATION OF COMPLIANCE	SHOP DRAWINGS	SAMPLES	COLOR SELECTION	MFG. RECOMMENDATIONS	MFG. WARRANTY	CATALOG DATA	OPERATING INSTRUCTIONS	TESTS	OTHER	REQD. SUBMISSION DATE								
1	Section 01010 1.8D Health & Safety Plan											3								
2	Section 01010 1.8E Safety Data Sheets											3								
3	Section 01010 1.9A Warranty List					3						3								
4	Section 01010 1.10A Permits											3								
5	Section 01010 1.11E Testing	3										3	3							
6	Section 01061 1.9C Disposal Plan											3								
7	Section 01300 1.1G Construction Progress Schedule											3								
8	Section 01300 1.1M Schedule of Inspection and Test "Schedule"											3								
9	Section 01300 1.1R Daily Reports											2								
10	Section 01631 1.1F1 Product Substitution	3	3	3	3	3	3					3								
11	Section 09800 1.3 Submittals		3			3	3	3												

COMMENTS

(Number to correspond with applicable Item Number on reverse)

INSTRUCTIONS TO CONTRACTORS

1. The term "material" is defined as articles, supplies, raw materials, equipment, parts, components, and end items that are to be incorporated into the work required by the contract.
2. This form is to be used by contractors for submitting Shop Drawings, Equipment Data, Manufacturer's Literature and Certificates and samples of Materials to the Government for approval in accordance with the provisions of this contract. Unless otherwise specified, it is to be prepared in 4 copies, signed, and provided to the contracting officer with appropriate attachments.
3. Item(s) to be approved will be clearly tabbed or identified. Data pertaining to item(s) to be approved will be clearly identified or tabbed, particularly where documents are voluminous, in order to properly evaluate the materials or articles to be incorporated in the work. Each attachment will be numbered to correspond with the item number shown on the face of this form.
4. Requests submitted shall be numbered consecutively, by contract, in the space entitled "Submission No.". This number, in addition to the Contract No., will be used to identify each Material Approval Submittal. Resubmissions will be indicated in the appropriate block and the insertion of previous submission number and data in addition to a new submission number. A single submission should be used for all work of a section of the specifications, but in NO instance should the submission include work for more than one (1) contract. Submittals requiring priority handling will be submitted by separate submittal using the form and so marked across the face of the form.
5. This Material Approval Submittal is not valid unless it is signed by the contracting officer. This approval is required as called for by the contracting officer under the terms of this contract.

SECTION 01631 - PRODUCT SUBSTITUTIONS

1.1 GENERAL

- A. This Section specifies administrative and procedural requirements for handling requests for substitutions after award of the Contract.
- B. The Contractor's Progress Schedule and the Schedule of Submittals are included under Section 01300 "Submittals."
- C. Definitions used in this Article are not intended to change or modify the meaning of other terms used in the Contract Documents.
- D. Substitutions Prior to Bidding: No substitution will be considered prior to receipt of bids. The Government will allow and process a request for substitution after the award of the Contract.
- E. Substitutions After Award of Contract: Requests for changes in products, materials, equipment, and methods of construction required by Contract Documents proposed by the Contractor after award of the Contract are considered requests for "substitutions." The following are not considered substitutions:
 - 1. Revisions to Contract Documents requested by the Contracting Officer.
 - 2. Specified options of products and construction methods included in Contract Documents.
 - 3. The Contractor's determination of a compliance with governing regulations and order issued by governing authorities.
- F. Substitution Request Submittal After Award of Contract: Requests for substitution will be considered if received within seven (7) calendar days after award of contract.
 - 1. Submit three (3) copies on AF Form 3000 of each request for substitution for consideration.
 - 2. Identify the product, or the fabrication or installation method to be replaced in each request. Include related Specification Section and Drawing numbers. Provide complete documentation showing compliance with the requirements for substitutions, and the following information, as appropriate:
 - a. Such requests shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitution including drawings, performance and test data, and other information necessary for an evaluation.
 - b. A statement setting forth changes in other materials, equipment or other portions of the Work that incorporation of the proposed substitution would require shall be included.
 - c. The burden of proof of the merit of the proposed substitution is upon the proposer (Contractor).
 - d. Product Data, including Drawings and descriptions of products, fabrication and installation procedures.
 - e. Samples, where applicable or requested.
 - f. A detailed comparison of significant qualities of the proposed substitution with those of the Work specified. Significant qualities may include elements such as size, weight, durability, performance and visual effect.
 - g. Coordination information, including a list of changes or modifications needed for other parts of the Work and for construction performed that will become necessary to accommodate the proposed substitution.

- h. A statement indicating the substitutions effect on the Contractor's Progress Schedule compared to the schedule without approval of the substitution. Indicate the effect of the proposed substitution on overall Contract Time.
 - i. Cost information, including a proposal of the net change, if any in the Contract Sum.
 - j. Certification by the Contractor that the substitution proposed will perform in the application indicated as required by the Contract Documents. Include the Contractor's waiver of rights to additional payment or time, that may subsequently become necessary because of the failure of the substitution to perform as required by the Contract Documents.
 - k. The specified product or method of construction cannot receive necessary approval by a governing authority, and the requested substitution can be approved.
 - l. A substantial advantage is offered to the Government, in terms of cost, time, energy conservation or other considerations of merit, after deducting offsetting responsibilities the Contracting Officer may be required to bear. Additional responsibilities for the Government may include additional compensation for redesign and evaluation services, increased cost of other construction by the Government, and similar considerations.
 - m. The specified product or method of construction cannot be provided in a manner that is compatible with other materials, and where the Contractor certifies that the substitution will overcome the incompatibility.
 - n. The specified product or method of construction cannot be coordinated with other materials, and where the Contractor certifies that the proposed substitution can be coordinated.
 - o. The specified product or method of construction cannot provide a warranty required by the Contract Documents and where the Contractor certifies that the proposed substitution provide the required warranty.
- G. Contracting Officer's Action: Within one (1) week of receipt of the request for substitution, the Contracting Officer may request additional information or documentation necessary for evaluation of the request. The Contracting Officer will notify the Contractor of acceptance or rejection of the proposed substitution.
- H. Substitution Conditions: The Contractor's substitution request will be received and considered by the Contracting Officer when one or more of the following conditions are satisfied, as determined by the Contracting Officer; otherwise requests will be returned without action except to record noncompliance with these requirements.
- 1. Extensive revisions to Contract Documents are not required.
 - 2. Proposed changes are in keeping with the general Intent of Contract Documents.
 - 3. The request is timely, fully documented and properly submitted.
 - 4. The specified product or method of construction cannot be provided within the Contract Time. The request will not be considered if the product or method cannot be provided as a result of failure to pursue the Work promptly or coordinate activities properly.
- I. The Contractor's submittal and Contracting Officers acceptance of Shop Drawings, Product Data or Samples that relate to construction activities not complying with the Contract Documents does not constitute an acceptable or valid request for substitution, nor does it constitute approval.
- J. The Contracting Officer's decision of approval or disapproval of a proposed substitution shall be final.

END OF SECTION 01631

SECTION 09800 – SPECIAL COATINGS

1.1 GENERAL

- A. Drawings, Contract Clauses, Special Contract Requirements, and other Division I Specification Sections apply to this Section.

1.2 SCOPE

- A. This Specification details the procedures recommended for the application of protective coating system to the interior of a steel tank per Military Specification C-4554-A, the Department of Air Force ETL 86-4, Section 3, and Military Handbook 1022.
 - 1. Coating and work practices shall also comply with API Recommended Practices 1631 (1992) “Interior Lining of Underground Storage Tanks” and NLPA Standard 631 (1991) “Entry, Cleaning, Interior Inspection, Repair, and Lining of Underground Storage Tanks.”
- B. In cases where there is a procedure difference between this Specification and any other specification or standard referred to, the Government shall be consulted.
- C. The applicator should review this specification and consult the Contracting Officer regarding its interpretation, disapproval or request for procedure changes. Deviations from this Specification should be discussed and agreed to by the Contracting Officer.
- D. The coating material manufacturer’s current product data sheets are to be used in conjunction with and become a part of the Specification. The applicator should adhere to all accommodations of product shelf life, mixing ratios and acceptable thinners.
- E. The applicator should use industry standard inspection equipment, quality control, and inspection policies in regards to the application of this product.
- F. It is the responsibility of the applicator to adhere to industry standard application and inspection procedures for record keeping purposes.
- G. The coating system is to be applied in two coats, using alternate colors, to a nominal film thickness of 10 mils. The acceptable minimum is 8 mils and the maximum is 12 mils with acceptable spots at 16 mils.
- H. It is the applicator’s responsibility to compute and supply adequate ventilation to prevent explosion and toxicity hazard conditions as prescribed by standards of good safety practices, local and state regulations, OSHA, and other federal regulations.

1.3 SUBMITTALS

- A. Submit copies of product data for the coating system specified.
- B. Submit copies of previous application of this product for similar installations.
- C. Submit sample of sand blasting as herein specified.
- D. Manufacturer's certificate of compliance or conformance attesting that the materials proposed for use meet the requirements specified.
- E. Submit evidence that solvent to be used to clean inside of tank(s) has received approval from Hazardous Waste Management (Form 3952-Chemical/Hazardous Material Request Authorization) CEVQ.

1.4 COATING PRODUCTION, SAMPLING, AND TESTING

- A. The coating specified in this guide specification shall be procured from a manufacturer listed on the latest Qualified Product Listing (QPL) for MIL-P-2441 or MIL-C-24176 or equivalent.
- B. A copy of the test report for each batch shall be forwarded to the Contracting Officer.

1.5 PRELIMINARY INSPECTION

- A. Before any coating is begun, the interior surfaces of the tank shall be inspected to see that the following has been done.
 - 1. All weld splatter, sharp projections, slivers, and pits shall be removed.
 - a. Weld metal shall be used to fill repairs.
 - b. Steel stiffeners within and around walls of the tank shall be seal welded both sides to close gaps between surfaces.
 - 2. Welds that are rough, irregular and not well formed should be corrected by grinding smooth.
 - 3. All sharp corners and edges should be rounded to at least 1/8-inch radius.
 - 4. No other conditions exist which would shorten the expected life of the applied coatings.

5. Used tank. (Based on the previous service environment, decontamination may be required.)
 - a. One or a combination of the following methods should perform decontamination.
 - 1) Pre-baking at 400° F or a minimum of 50° F above maximum service temperature for four hours.
 - 2) Steaming for 24 hours with 15 psi steam.
 - 3) Ultra high-pressure (30,000 psi) washing.
 - 4) High pressure washing with cleaning or neutralizing chemicals.
 - b. Decontamination should be verified by the use of a chloride test kit, pH test or black light, whatever is dictated by the previous service conditions.

1.6 SURFACE PREPARATION

- A. Oil and grease shall be removed from the surfaces to be coated with a suitable safety solvent prior to abrasive blasting.
 1. Tank design and fabrication details should be in accordance with NACE RP0178. All sharp edges and welds should be ground smooth to a rounded contour in accordance with NACE Weld Preparation Designation “C” and all weld splatter should be removed prior to abrasive blasting.
 2. Non-carbon steel parts that will not be coated should be removed and/or protected prior to blasting, including but not limited to hatch covers, hatch rings, outlet valves and vents. The lining should be terminated on the non-carbon steel approximately 1-inch past the interface.
 3. The compressed air used for blasting should be free of water and oil. To determine cleanliness, blast without abrasive into a white cloth. The trap and separators should be blown down until subsequent cloth tests show no oil or water contamination.
 4. All weld seams should be individually blasted prior to blasting other areas of the tank. Weld seams can be the areas of early coating failure. Removal of contaminants and achieving the proper anchor pattern in the heat affected zone at the welds is critical to the service life of the lining.
- B. Surfaces shall be blasted to a “white metal” in accordance with SSPC-SP5 or NACE No. 1, or SSPC-SP10.
 1. Prior to commencing blasting, prepare a 12-inch square steel test plate for conditions selected in SSPC-Guide to Vis I. Submit the sample to the Contracting Officer. The approved sample shall be used as a standard of comparison for the tanks surfaces throughout the course of work.
 2. Blasting equipment shall be conventional air, force-feed or pressure type. Dry blasting is preferred but if required to meet environmental regulations, wet abrasive blasting may be used.

3. The anchor pattern or “tooth” in the metal should be a minimum of 2.5 mils with an average representing 20 to 25% of the total dry film thickness of the coating system. Proper abrasive should be a sharp natural abrasive, slag grit or steel grit similar to or equal to G40 or other abrasives having a sharp, hard cutting surface, properly graded, dry, of best quality, and of proper size to produce the specified anchor pattern.
4. All internal surfaces should be vacuum cleaned to remove all blast media and dust after blasting is completed. External surfaces may be air blown clean using dry oil-free air. Magnets are suggested to remove steel grit particles not removed by other methods.
5. No visible oxidation should be permitted between the time of blasting and priming the blasted surface.
6. The interior of the tank should be protected from moisture from the time of blasting to the time of application of the lining.
7. Sharp depressions or deep pits shall be welded and ground smooth, epoxy cement shall be troweled in and smoothed.

1.7 LINING MATERIAL

- A. Lining material shall be equivalent to PLASITE 7111, consisting of two coats. Reference: PLASITE Protective Coatings’ Product Data Sheet 7111.

1.8 OTHER APPLICABLE MATERIALS

- A. Primer: Epoxy-Polyamide, Green Primer, Formula 150 of MIL-P-24441.
- B. Top Coat: Epoxy-Polyamide, Haze Gray Topcoat, Formula 151 of MIL-P-24441.
- C. Top Coat: Epoxy-Polyamide, White Topcoat, Formula 152 of MIL-P-24441.
- D. Epoxy Cement: MIL-C-24176, Type II.
- E. Vapor-Tight Material: MIL-B-131 or MIL-P-3420.
- F. Abrasives: Abrasives for blasting shall be sharp, washed, salt free, “angular silica sand, crushed garnet, or slag, free from feldspar or other” constituents that tend to break down and remain on the surface. Particle size grading shall be such that all particles will pass a No. 20 sieve and be retained on a No. 40 sieve with not less than 40% retained to a No. 30 sieve.

1.9 COATING APPLICATION

- A. Apply prime coat as soon as practical after the abrasive blast cleaning. If visible rust does occur regardless of the time period, reblast the surface prior to applying the prime coat.

- B. Before starting the coating application, it is recommended that the applicator read all-available safety data including, but not limited to, OSHA approved Material Safety Data Sheet, Product Data Sheet and Backup Label.
- C. PLASITE 7111 consists of two parts, which must be mixed prior to using. The curing agent is in a separate container and measured for the coating unit supplied. Thoroughly mix the pigments. After the pigment and liquid are thoroughly mixed, add the measured liquid containing the curing agent slowly and mix completely with the coating. The coating should stand approximately 30 minutes after the curing agent has been thoroughly mixed. After the coating and curing agent have been combined and mixed, it has an approximate 12 hour pot life 70° F. Reference: PLASITE Protective Coatings' Product Data Sheet 7111.
 - 1. It will always be necessary to thin the coating. Normal application temperatures will require the addition of approximately 10% by volume PLASITE 69 thinner. Above the normal application temperature range of 65- to 85° F will require additional thinning at the rate of approximately 5% per 5° F of increased substrate temperature.
- D. The lining application must not proceed until the substrate temperature is a minimum of 5° F above the dew point. Minimum air or surface temperature at the time of application should be 50° F.
- E. The weld seams should be scrub stripped before spray application begins.
 - 1. The stripping should be performed with a good quality bristle brush using PLASITE 7111 - White, which has been thinned two parts coating to one part PLASITE 69 thinner.
 - 2. Scrub stripping is accomplished by moving the brush back and forth in a scrubbing motion to work the primer into crevices and undercut areas of the welds.
 - 3. Bristles left on the surface should be removed before the coating dries.
- F. All areas subject to overspray and a suitable covering while spraying other areas in the tank should protect drips (such as the tank floor).
- G. When airless spray equipment is used, the recommended liquid pressure is 1500 to 1800 psi with tip size from .017" to .021". Adjust spray tip orifice size and material fluid pressure to obtain a spray pattern with the best possible atomization.
- H. Air supply should be uncontaminated.
- I. Apply a mist-bonding pass of PLASITE 7111 – White. Allow drying approximately one minute but not long enough to allow film to dry completely.
- J. Apply a crisscross/multi-pass moving the gun at a fairly rapid rate maintaining a wet appearing film. By allowing the solvents to flash off for a few minutes, additional fast multi-passes may be applied until you have a film thickness of approximately 8 to 10 wet mils (measured with a wet film thickness gauge) and approximately 4 to 5 mils dry film.

- K. Venting from the bottom of the tank is recommended during the application and initial curing process.
- L. Overcoat time will vary with the temperature and ventilation and will require 10 to 12 hours at 70° F for enclosed spaces.
1. Force curing may be used between coats for time and work planning. Following the circulation of fresh air at 70° to 100° F through the tank for a period of 2 to 5 hours, the substrate temperature should be increased at a maximum rate of 30 F per 30 minutes until the tank shell reaches a substrate temperature of 125 F for a period of one hour. Do not exceed 150° F substrate temperature at any location on the interior of the tank shell. The topcoat must be applied within two weeks for substrate temperature exposures up to 130° F. For temperature exposures of 130° F to 150° F, it must be top-coated in a maximum of 24 hours.
- M. Prior to applying the topcoat, all runs, drips and rough areas should be removed from the primer by light sanding and recoating.
- NOTE: Be sure to remove any dust from sanding before applying topcoat.
- N. Topcoat: By repeating Steps I and J, using PLASITE 7111 – Light Gray, a homogenous film of 8 to 10 mils is obtained. Verify color with Contracting Officer.
1. Topcoat should be smooth in appearance and holiday-free as determined with a holiday tester.
- O. General. The dry film thickness (DFT) of coating system shall be as specified below. The complete coating system shall be 8 to 10 mils DFT.
1. 1st Coat: Formula 150 Epoxy-Polyamide Green “Primer, MIL-P-24441, 2 to 4 mils DFT.”
 2. 2nd Coat: Formula 151 Epoxy-Polyamide Haze Gray “Topcoat, MIL-P-24441, 2 to 4 mils DFT.”
 3. 3rd Coat: Formula 152 Epoxy-Polyamide White “Topcoat, MIL-P-24441, 2 to 4 mils DFT.”
- O. Defects should be sanded smooth and recoated for retest for film thickness and holidays.

1.10 CURING

- A. Normally, polymerization and curing will take place in 7 days at 70 F.
- B. Curing must be complete before the tank is closed. This may require force curing.
- C. Force curing at elevated temperatures does increase resistance to certain exposures; therefore, when exposure is severe, force curing is recommended to obtain maximum resistance.

- D. An air-dry time of 2 to 5 hours at 70° to 100° F with ventilation should be allowed before force curing. After air dry period, substrate temperature should be raised approximately 30° F in increments of 30° minutes until the desired temperature is reached. Curing time begins when the specific substrate temperature is reached.

SUBSTRATE CURING TIME TEMPERATURE

°F	°C	Cure Time
150	65.5	6 hours
160	71.1	4 ½ hours
170	76.7	3 ½ hours
180	82.2	2 ½ hours
200	93.3	1 ¾ hours

1.11 FINAL INSPECTION

- A. Following completion and cure of the coating system, the surfaces shall be carefully inspected by the Contractor for pinholes, blisters, inadequate coating thickness, and other defects. The Contractor shall repair all imperfections found that deviate from the specification.
- B. The dry film thickness shall be measured by the Contractor using a calibrated magnetic gage at 10 equally spaced points within a 10-foot by 10-foot area as designated. The highest and lowest values shall be discarded and an average of the remaining eight values shall be taken as the coating thickness. If the average is less than the specified minimum dry film thickness, additional readings shall be taken in adjacent areas to define the extent of the thin area. Such areas shall be recoated with the topcoat as necessary to achieve the specified thickness.

1.12 FINAL CLEAN UP

- A. Following completion of the work, the Contractor shall remove all debris, equipment, and materials from the site. Temporary connections to Government furnished water and electrical services shall be removed. All existing facilities in and around the work areas shall be restored to their original condition.
- B. The Contractor shall remove from inside of the tank(s) all remaining residue grit and other fuel contaminates and provide post-cleaning and other cleanliness preparation necessary for tank(s) to receive fuel.

END OF SECTION 09800